

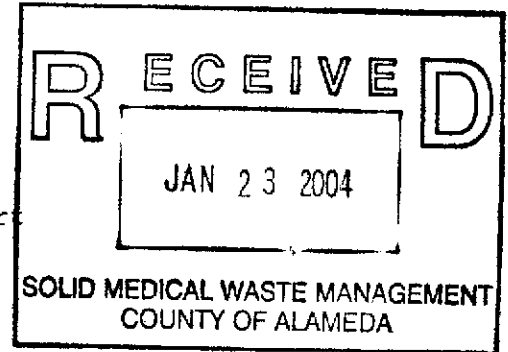


Atlantic Richfield Company
(a BP affiliated company)

P.O. Box 6549
Moraga, California 94570
Phone: (925) 299-8891
Fax: (925) 299-8872

January 16, 2004

Fourth Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #4977
2770 Castro Valley Blvd.
Castro Valley, California
URS Project #38486461



I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached document are true and correct.

Submitted by:

Paul Supple
Environmental Business Manager



January 16, 2004

Ms. eva chu
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

**Re: Fourth Quarter 2003 Groundwater Monitoring Report
ARCO Service Station #4977
2770 Castro Valley Blvd
Castro Valley, California
URS Project #38486461**

Dear Ms. chu

On behalf of Atlantic Richfield Company (ARCO – a BP affiliated company), URS Corporation (URS) is submitting the *Fourth Quarter 2003 Groundwater Monitoring Report* for ARCO Service Station #4977, located at 2770 Castro Valley Blvd, Castro Valley, California.

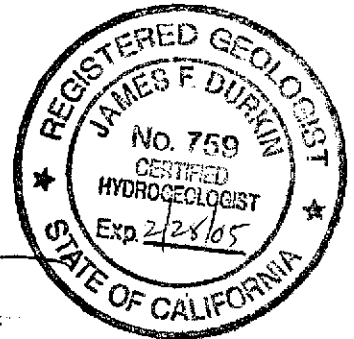
If you have any questions regarding this submission, please call (510) 874-3280.

Sincerely,

URS CORPORATION

Scott Robinson
Project Manager

James F. Durkin, C.Hg.
Senior Geologist



Enclosure: Fourth Quarter 2003 Groundwater Monitoring Report

cc: Mr. Paul Supple, ARCO (electronic copy uploaded to ENFOS)

R E P O R T

**FOURTH QUARTER 2003
GROUNDWATER MONITORING**

ARCO SERVICE STATION #4977
2770 CASTRO VALLEY BLVD
CASTRO VALLEY, CALIFORNIA

Prepared for
Atlantic Richfield Company

January 16, 2004

URS

URS Corporation
500 12th Street, Suite 200
Oakland, California 94607

38486461

Date: January 16, 2004

Quarter: 4Q 03

ATLANTIC RICHFIELD COMPANY QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 4977 Address: 2770 Castro Valley Blvd, Castro Valley, CA
ARCO Environmental Business Manager: Paul Supple
Consulting Co./Contact Person: URS Corporation / Scott Robinson
Consultant Project No.: 38486461
Primary Agency: Alameda County Health Services Agency (ACHCSA)

WORK PERFORMED THIS QUARTER (Fourth – 2003):

1. Performed fourth quarter groundwater monitoring event on December 11, 2003.
2. Prepared and submitted third quarter 2003 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (First – 2004):

1. Perform first quarter groundwater monitoring event.
2. Prepare and submit fourth quarter 2003 groundwater monitoring report.

Current Phase of Project:	<u>GW monitoring/sampling</u>
Frequency of Groundwater Sampling:	<u>Quarterly: Wells MW-1 through MW-3</u>
Frequency of Groundwater Monitoring:	<u>Quarterly</u>
Is Free Product (FP) Present On-Site:	<u>No</u>
Current Remediation Techniques:	<u>Natural Attenuation</u>
Approximate Depth to Groundwater:	<u>6.50 ft (MW-2) to 8.80 ft (MW-1)</u>
Groundwater Gradient (direction):	<u>South-southwest</u>
Groundwater Gradient (magnitude):	<u>0.024 feet per foot</u>

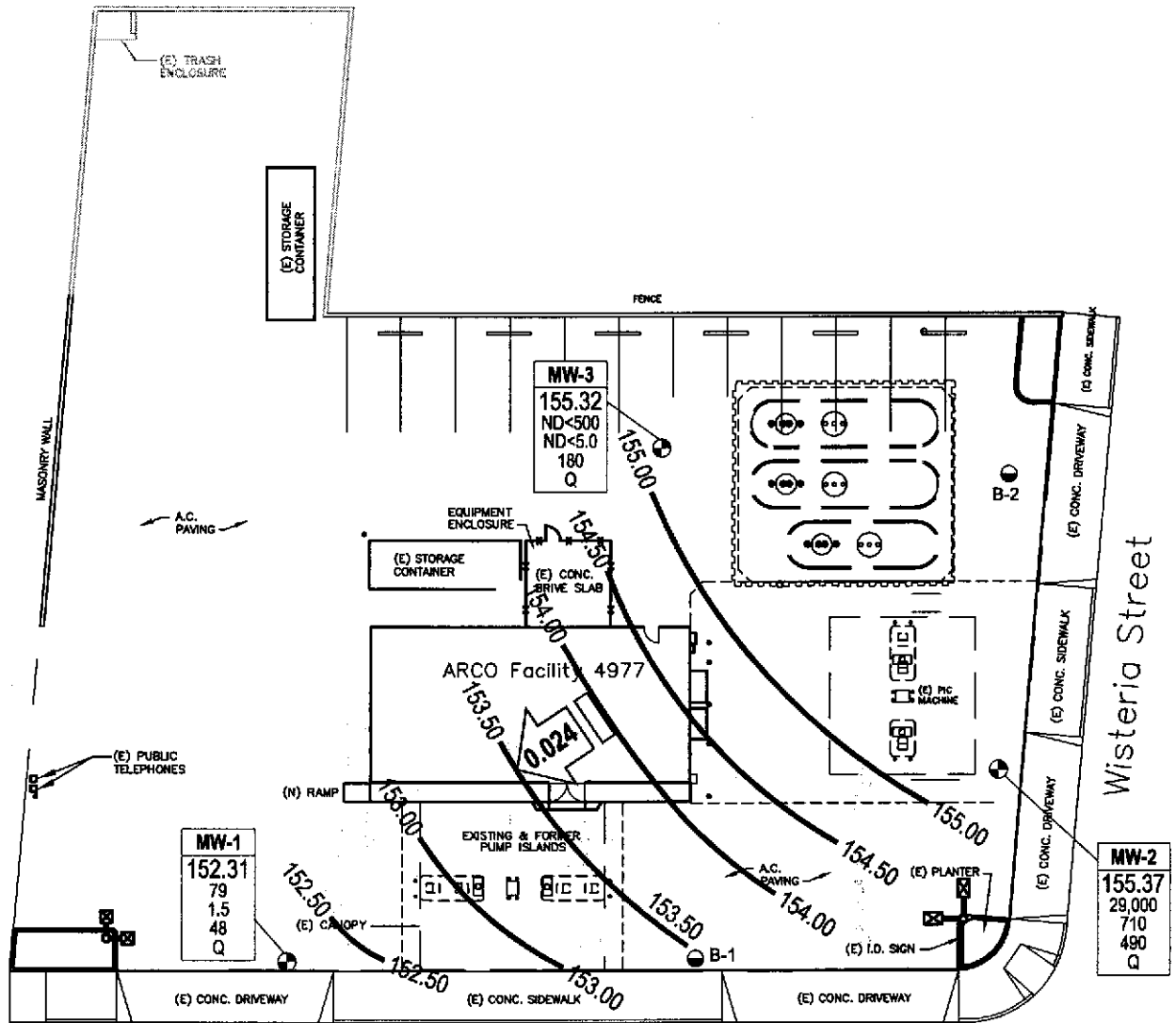
DISCUSSION:

Gasoline range organics (GRO) were detected above laboratory reporting limits in two of the three wells sampled this quarter at concentrations of 79 µg/L (MW-1) and 29,000 µg/L (MW-2). MW-3 had a relatively high reporting limit of 500 µg/L for GRO. Benzene was detected above laboratory reporting limits in two wells at concentrations of 1.5 µg/L (MW-1) and 710 µg/L (MW-2). MTBE was detected above laboratory reporting limits in all three wells at concentrations ranging from 48 µg/L (MW-1) to 490 µg/L (MW-2). No other fuel oxygenates other than MTBE were detected in any of the samples.

ATTACHMENTS:

- Figure 1 - Groundwater Elevation Contour and Analytical Summary Map – December 11, 2003
- Table 1 - Groundwater Elevation and Analytical Data
- Table 2 - Groundwater Flow Direction and Gradient
- Table 3 - Fuel Oxygenate Analytical Data
- Attachment A - Field Procedures and Field Data Sheets
- Attachment B - Laboratory Procedures, Certified Analytical Reports and Chain-of-Custody Records
- Attachment C - EDCC Report and EDF/Geowell Submittal Confirmation

X:\x_env\waste\BP_GEM\Site\Scott_Robinson\Paul_Supplier\4977\Monitoring\Qtr. 4, 2003\Drawings\GWEC-AS_12-11.dwg, 01/14/2004 11:54:06 AM, JKMT, URS



Castro Valley Blvd.

Wisteria Street

LEGEND

- MONITORING WELL
- SOIL BORING
- Well** — WELL DESIGNATION
- ELEV** — GROUNDWATER ELEVATION (FT ABOVE MSL)
- TPH-g** — CONCENTRATION OF TPH-g, BENZENE AND MTBE IN GROUNDWATER (µg/L)
- Benzene**
- MTBE**
- Q** — SAMPLING FREQUENCY
- ND< — NOT DETECTED AT OR ABOVE LABORATORY REPORTING LIMITS
- Q — SAMPLED QUARTERLY
- 153.00 — GROUNDWATER ELEVATION CONTOUR (FT ABOVE MSL)
- GROUNDWATER FLOW DIRECTION AND GRADIENT (FT/FT)



0 30 60

SCALE IN FEET

NOTE: SITE MAP ADAPTED FROM DELTA ENVIRONMENTAL FIGURES. SITE DIMENSIONS AND FACILITY LOCATIONS NOT VERIFIED.



Project No. 38486461
 Arco Service Station #4977
 2770 Castro Valley Boulevard
 Castro Valley, California

**GROUNDWATER ELEVATION CONTOUR
 AND ANALYTICAL SUMMARY MAP**
 Fourth Quarter 2003 (December 11, 2003)

FIGURE

1

**Table 1
Groundwater Elevation and Analytical Data**

ARCO Service Station #4977
2770 Castro Valley Boulevard
Castro Valley, California

Sample ID	Date	Top of Casing Elevation (ft amsl)	Depth to Top of Screen (ft., bgs)	Depth of Well/Bottom of Screen (ft., bgs)	Depth to Groundwater (ft btc)	Groundwater Elevation (ft amsl)	TPH-g ^c (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Dissolved Oxygen ^b (mg/L)	pH ^b
MW-1	04/19/02	161.11	5	15	11.21	149.90	660	12	1.3	4.3	0.80	38	NA	NA
	09/27/02				9.29	151.82	130	7.7	0.87	5.4	0.79	39	1.7	6.9
	12/16/02*				8.55	152.56	77	1.8	ND<0.50	0.69	ND<1.0	42	1.6	6.9
	03/11/03				8.07	153.04	140	9.8	ND<0.50	5.6	ND<0.50	20	1.4	7.4
	06/17/03				8.31	152.80	510	60	1.4	81	ND<1.0	23	2.2	7.0
	09/18/03 ^a				9.45	151.66	72	2.4	1.4	1.6	1.5	39	2.7	7.0
	12/11/03				8.80	152.31	79	1.5	ND<0.50	1.5	4.4	48	2.1	7.0
MW-2	04/19/02	161.87	5	15	6.59	155.28	28,000	970	120	860	6,900	760	NA	NA
	09/27/02				7.18	154.69	17,000	1,400	ND<50	1,200	3,700	1,400	1.5	6.8
	12/16/02*				7.31	154.56	17,000	1,000	ND<50	980	3,300	980	1.9	6.8
	03/11/03				6.02	155.85	24,000	1,600	70	1,300	4,300	920	1.7	7.4
	06/17/03				6.31	155.56	28,000	1,300	55	1,300	4,500	610	1.4	6.9
	09/18/03				7.61	154.26	19,000	960	63	1,100	3,100	580	2.7	6.8
	12/11/03				6.50	155.37	29,000	710	53	1,300	3,800	490	2.0	7.0
MW-3	04/19/02	162.14	5.00	15	6.94	155.20	1,200	29	1.1	43	62	1,700	NA	NA
	09/27/02				8.26	153.88	740	7.8	ND<2.5	6.8	4.4	1,100	1.0	6.7
	12/16/02*				6.76	155.38	1,200	13	ND<10	170	88	910	2.3	6.8
	03/11/03				6.92	155.22	ND<2,500	ND<25	ND<25	ND<25	ND<25	470	1.7	7.5
	06/17/03				7.44	154.70	ND<1,000	ND<10	ND<10	14	ND<10	530	1.9	7.0
	09/18/03				8.43	153.71	470	4.8	ND<2.5	10	9.2	300	2.9	6.8
	12/11/03				6.72	155.42	ND<500	ND<5.0	ND<5.0	7.0	13	180	1.9	6.9

amsl = above mean sea level
bgs = below ground surface
btc = below top of casing
ft = feet

TPH-g = Total petroleum hydrocarbons in the gasoline range (C5-C9).

MTBE = Methyl tertiary butyl ether analyzed by EPA Method 8021B unless otherwise noted. (before 12/16/02)

µg/L = micrograms per liter

mg/L = milligrams per liter

ND< = Not detected at or above laboratory reporting limits

* =TPH, BTEX, and MTBE analyzed by EPA Method 8260B beginning on 4th Quarter Sampling event (12/16/02)

a = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose.

b = Dissolved oxygen and pH are field measurements.

c = Starting on 12/11/03, laboratory results for TPH-g are reported as Gasoline Range Organics.

Source : The data within this table collected prior to September 2002 was provided to URS by Atlantic Richfield Company and their previous consultants. URS has not verified the accuracy of this information.

Table 2
Groundwater Flow Direction and Gradient

ARCO Service Station #4977
2770 Castro Valley Boulevard
Castro Valley, California

Date Measured	Average Flow Direction	Average Hydraulic Gradient
04/19/02	Southwest	0.038
09/27/02	Southwest	0.021
12/16/02	Southeast	0.029
03/11/03	South	0.024
06/17/03	South-Southwest	0.022
09/18/03	South-Southwest	0.022
12/11/03	South-Southwest	0.024

Source : The data within this table collected prior to September 2002 was provided to URS by Atlantic Richfield Company and their previous consultants. URS has not verified the accuracy of this information.

**Table 3
Fuel Oxygenate Analytical Data**

ARCO Service Station #4977
2770 Castro Valley Boulevard
Castro Valley, California

Well Number	Date Sampled	Ethanol (µg/L)	TBA (µg/L)	MTBE (µg/L)	DIPE (µg/L)	ETBE (µg/L)	TAME (µg/L)	1,2-DCA (µg/L)	EDB (µg/L)
MW-1	12/16/02	ND<50	ND<5.0	42	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	03/11/03	ND<100	ND<20	20	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	06/17/03	ND<200	ND<40	23	ND<1.0	ND<1.0	ND<1.0	ND<1.0	ND<1.0
	09/18/03 ^a	ND<100	ND<20	39	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
	12/11/03	ND<100	ND<20	48	ND<0.50	ND<0.50	ND<0.50	ND<0.50	ND<0.50
MW-2	12/16/02	ND<5,000	ND<500	980	ND<50	ND<50	ND<50	ND<50	ND<50
	03/11/03	ND<10,000	ND<2,000	920	ND<50	ND<50	ND<50	ND<50	ND<50
	06/17/03	ND<10,000	ND<2,000	610	ND<50	ND<50	ND<50	ND<50	ND<50
	09/18/03	ND<5,000	ND<1,000	580	ND<25	ND<25	ND<25	ND<25	ND<25
	12/11/03	ND<5,000	ND<1,000	490	ND<25	ND<25	ND<25	ND<25	ND<25
MW-3	12/16/02	ND<1,000	ND<100	910	ND<10	ND<10	12	ND<10	ND<10
	03/11/03	ND<5,000	ND<1,000	470	ND<25	ND<25	ND<25	ND<25	ND<25
	06/17/03	ND<2,000	ND<400	530	ND<10	ND<10	ND<10	ND<10	ND<10
	09/18/03	ND<500	ND<100	300	ND<2.5	ND<2.5	3.2	ND<2.5	ND<2.5
	12/11/03	ND<1,000	ND<200	180	ND<5.0	ND<5.0	ND<5.0	ND<5.0	ND<5.0

Note = All fuel oxygenate compounds analyzed using EPA Method 8260B
TBA = tert-Butyl alcohol
MTBE = Methyl tert-butyl ether
DIPE = Di-isopropyl ether
ETBE = Ethyl tert butyl ether
TAME = tert-Amyl methyl ether
1,2-DCE = 1,2-Dichloroethane
EDB = 1, 2 Dibromoethane
µg/L = micrograms per liter
ND< = Not detected at or above laboratory reporting limit

a = This sample was originally analyzed within the EPA recommended hold time. Re-analysis for confirmation or dilution was performed past the recommended hold time. The results may still be used for their intended purpose. For more details see Attachment B.

ATTACHMENT A
FIELD PROCEDURES AND FIELD DATA SHEETS

FIELD PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and depth to bottom, and checking for the presence of free phase petroleum product (free product), using either an electronic indicator and a clear Teflon™ bailer or an oil-water interface probe.

Wells not containing free product are purged approximately three casing volumes of water (or until dewatered) using a centrifugal pump, gas displacement pump, or bailer. Equipment and purging method used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially (approximately 80%) recover. Groundwater samples (both purge and no purge) are collected using a Teflon bailer, placed into appropriate Environmental Protection Agency- (EPA) approved containers, labeled, logged onto chain-of-custody records, and transported on ice to a California State-certified laboratory. Wells with free product are not sampled and free product is removed according to California Code of Regulation, Title 23, Div. 3, Chap. 16, Section 2655, UST Regulations.

ARCO / BP WELL MONITORING DATA SHEET

BTS #: <u>031211-LTZ</u>	Station # <u>4977</u>
Sampler: <u>LTD11</u>	Date: <u>12-11-03</u>
Well I.D.: <u>MW-3</u>	Well Diameter: 2 3 <u>4</u> 6 8
Total Well Depth: <u>1495</u>	Depth to Water: <u>6.72</u>
Depth to Free Product:	Thickness of Free Product (feet):
Referenced to: <u>PVC</u> Grade	D.O. Meter (if req'd): <u>YSI</u> HACH

Well Diameter	Multiplier	Well Diameter	Multiplier
1"	0.04	4"	0.65
2"	0.16	6"	1.47
3"	0.37	Other	radius ² * 0.163

Purge Method: Bailer Sampling Method: Bailer

Disposable Bailer Disposable Bailer
 Positive Air Displacement Extraction Port
 Electric Submersible
 Extraction Pump Other: 2.5 gpm
 Other: _____

Top of Screen: _____ If well is listed as a no-purge, confirm that water level is below the top of screen. Otherwise, the well must be purged.

<u>5.3</u>	x	<u>3</u>	=	<u>15.9</u>	Gals.
1 Case Volume (Gals.)		Specified Volumes		Calculated Volume	

Time	Temp (°F)	pH	Conductivity (mS or µS)	Gals. Removed	Observations
1452	71.5	7.0	874	5.3	
	Dewatered				
1515	71.0	6.9	851	—	DTW = 13.10

Did well dewater? Yes No Gallons actually evacuated: 6

Sampling Time: 1515 Sampling Date: 12-11-03

Sample I.D.: MW-3 Laboratory: Pace Sequoia Other _____

Analyzed for: TPH-G BTEX MTBE TPH-D Other: OXY(S), ETHANOL, 1,2 DCA & EDB

D.O. (if req'd):	Pre-purge:	mg/L	Post-purge:	1.9 mg/L
O.R.P. (if req'd):	Pre-purge:	mV	Post-purge:	mV



Chain of Custody Record

Project Name 4977 GWM
 BP BU/GEM CO Portfolio Retail
 BP Laboratory Contract Number: Atlantic Richfield Company

Date: 12-11-03 Requested Due Date (mm/dd/yy) 14 day TAT

On-site Time: <u>1345</u>	Temp: <u>69°</u>
Off-site Time:	Temp:
Sky Conditions: <u>Clear</u>	
Meteorological Events: <u>NONE</u>	
Wind Speed: <u>0</u>	Direction: <u>0</u>

Send To:	BP/GEM Facility No.: <u>ARCO 4977</u>	Consultant/Contractor: <u>URS</u>
Lab Name: <u>SEQUOIA</u>	BP/GEM Facility Address: <u>2770 Castro Valley Rd, Castro Valley, CA</u>	Address: <u>500 12th St., Ste. 200</u>
Lab Address: <u>885 Jarvis Dr.</u>	Site ID No. <u>ARCO 4977</u>	<u>Oakland, CA 94609-4014</u>
<u>Morgan Hill, CA 95037</u>	Site Lat/Long:	e-mail EDD: <u>donna.casper@URSCorp.com</u>
	California Global ID #:	Consultant/Contractor Project No.: <u>15-00004977.01 00427</u>
Lab PM Theresa Allen	BP/GEM PM Contact: <u>PAUL SUPPLE</u>	Consultant Tele/Fax: <u>510-893-3600/510-874-3268</u>
Tele/Fax: <u>408-776-9600 / 408-782-6308</u>	Address: <u>P.O. Box 6549</u>	Consultant/Contractor PM: <u>Scott Robinson</u>
Report Type & QC Level: <u>1 Send EDF Reports</u>	<u>Moraga, CA 94570</u>	Invoice to: Consultant/Contractor of <u>BP/GEM</u> (Circle one)
BP/GEM Account No.:	Tele/Fax: <u>925-299-8891/925-299-8872</u>	BP/GEM Work Release No: <u>INTRIM -50467</u>

Item No.	Sample Description	Time	Matrix				Laboratory No.	No. of containers	Preservatives				Requested Analysis						Sample Point Lat/Long and Comments		
			Soil/Solid	Water/Liquid	Sediments	Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-G/BTEX (8015)	TPH-D (8015)	MTBE (8021)	MTBE (8260)	MTBE, TAME, ETBE (8260)	DIPE, TBA (8260)		1,2-DCA & HDB (8260)	Ethanol (8260)
1	MW-1	1510					3							X	X	X					
2	MW-2	1500					3							X	X	X					
3	MW-3	1515					3							X	X	X					
4	TB-4977-1211 2003	-					1													on hold	
5																					
6																					
7																					
8																					
9																					
10																					

Sampler's Name: <u>Michael Dill</u>	Relinquished By / Affiliation: <u>[Signature] BTS</u>	Date:	Time:	Accepted By / Affiliation:	Date:	Time:
Sampler's Company: <u>Blaine Tech Services</u>						
Shipment Date:						
Shipment Method:						
Shipment Tracking No.:						

Special Instructions: Address Invoice to BP/GEM but send to URS for approval

Custody Seals In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt F/C Trip Blank Yes No

BP GEM OIL COMPANY TYPE A BILL OF LADING

SOURCE RECORD BILL OF LADING FOR NON-HAZARDOUS PURGEWATER RECOVERED FROM GROUNDWATER WELLS AT BP GEM OIL COMPANY FACILITIES IN THE STATE OF CALIFORNIA. THE NON-HAZARDOUS PURGE- WATER WHICH HAS BEEN RECOVERED FROM GROUND- WATER WELLS IS COLLECTED BY THE CONTRACTOR, MADE UP INTO LOADS OF APPROPRIATE SIZE AND HAULED BY DILLARD ENVIRONMENTAL TO THE ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY IN LIVERMORE, CALIFORNIA.

The contractor performing this work is BLAINE TECH SERVICES, INC. (BTS), 1680 Rogers Avenue, San Jose, CA 95112 (phone [408] 573-0555). Blaine Tech Services, Inc. is authorized by BP GEM OIL COMPANY to recover, collect, apportion into loads the Non-Hazardous Well Purgewater that is drawn from wells at the BP GEM Oil Company facility indicated below and deliver that purgewater to BTS. Transport routing of the Non-Hazardous Well Purgewater may be direct from one BP GEM facility to the designated destination point; from one BP GEM facility to the designated destination point via another BP GEM facility; from a BP GEM facility to the designated destination point via the contractor's facility, or any combination thereof. The Non-Hazardous Well Purgewater is and remains the property of BP GEM Oil Company.

This Source Record BILL OF LADING was initiated to cover the recovery of Non-Hazardous Well Purgewater from wells at the BP GEM Oil Company facility described below:

4977

Station #

2770 Castro Valley Blvd., Castro Valley

Station Address

Total Gallons Collected From Groundwater Monitoring Wells:

21

added equip.
rinse water

21

any other
adjustments

TOTAL GALS.
RECOVERED

22

loaded onto
BTS vehicle #

55

BTS event #

D31211-MT2

time

1530

date

12/11/03

signature

[Signature]

REC'D AT

BTS

time

date

12/11/03

unloaded by
signature

[Signature]

ATTACHMENT B
LABORATORY PROCEDURES,
CERTIFIED ANALYTICAL REPORTS,
AND CHAIN-OF-CUSTODY RECORDS

LABORATORY PROCEDURES

Laboratory Procedures

The groundwater samples were analyzed for the presence of the chemicals mentioned in the chain of custody using standard EPA methods. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical reports and chain-of-custody record are presented in this attachment. The analytical data provided by the laboratory approved by Group Environmental Management Company have been reviewed and verified by that laboratory.



24 December, 2003

Scott Robinson
URS Corporation [Arco]
500 12th Street, Suite 200
Oakland, CA 94607

RE: ARCO #4977, Castro Valley, CA
Work Order: MML0428

Enclosed are the results of analyses for samples received by the laboratory on 12/12/03 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Theresa Allen
Project Manager

CA ELAP Certificate #1210

URS Corporation [Arco]
500 12th Street, Suite 200
Oakland CA, 94607

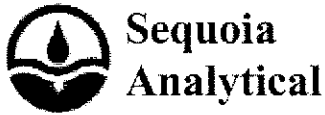
Project: ARCO #4977, Castro Valley, CA
Project Number: INTRIM-50467
Project Manager: Scott Robinson

MML0428
Reported:
12/24/03 13:23

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	MML0428-01	Water	12/11/03 15:10	12/12/03 18:00
MW-2	MML0428-02	Water	12/11/03 15:00	12/12/03 18:00
MW-3	MML0428-03	Water	12/11/03 15:15	12/12/03 18:00
TB-4977-12112003	MML0428-04	Water	12/11/03 00:00	12/12/03 18:00

There were custody seals received with this project.



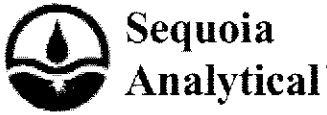
URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

Project: ARCO #4977, Castro Valley, CA
 Project Number: INTRIM-50467
 Project Manager: Scott Robinson

MML0428
 Reported:
 12/24/03 13:23

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (MML0428-01) Water Sampled: 12/11/03 15:10 Received: 12/12/03 18:00									
Ethanol	ND	100	ug/l	1	3L20002	12/20/03	12/21/03	EPA 8260B	
tert-Butyl alcohol	ND	20	"	"	"	"	"	"	
Methyl tert-butyl ether	48	0.50	"	"	"	"	"	"	
Di-isopropyl ether	ND	0.50	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	0.50	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
Benzene	1.5	0.50	"	"	"	"	"	"	
Toluene	ND	0.50	"	"	"	"	"	"	
Ethylbenzene	1.5	0.50	"	"	"	"	"	"	
Xylenes (total)	4.4	0.50	"	"	"	"	"	"	
Gasoline Range Organics	79	50	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %	78-129	"	"	"	"	"	
MW-2 (MML0428-02) Water Sampled: 12/11/03 15:00 Received: 12/12/03 18:00									
Ethanol	ND	5000	ug/l	50	3L20002	12/20/03	12/21/03	EPA 8260B	
tert-Butyl alcohol	ND	1000	"	"	"	"	"	"	
Methyl tert-butyl ether	490	25	"	"	"	"	"	"	
Di-isopropyl ether	ND	25	"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	25	"	"	"	"	"	"	
tert-Amyl methyl ether	ND	25	"	"	"	"	"	"	
1,2-Dichloroethane	ND	25	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	25	"	"	"	"	"	"	
Benzene	710	25	"	"	"	"	"	"	
Toluene	53	25	"	"	"	"	"	"	
Ethylbenzene	1300	25	"	"	"	"	"	"	
Xylenes (total)	3800	25	"	"	"	"	"	"	
Gasoline Range Organics	29000	2500	"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		98.8 %	78-129	"	"	"	"	"	



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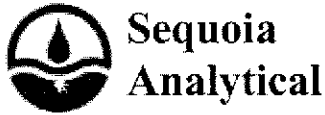
URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

Project: ARCO #4977, Castro Valley, CA
 Project Number: INTRIM-50467
 Project Manager: Scott Robinson

MML0428
 Reported:
 12/24/03 13:23

Volatile Organic Compounds by EPA Method 8260B
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
MW-3 (MML0428-03) Water Sampled: 12/11/03 15:15 Received: 12/12/03 18:00										
Ethanol	ND	1000		ug/l	10	3L20002	12/20/03	12/21/03	EPA 8260B	
tert-Butyl alcohol	ND	200		"	"	"	"	"	"	
Methyl tert-butyl ether	180	5.0		"	"	"	"	"	"	
Di-isopropyl ether	ND	5.0		"	"	"	"	"	"	
Ethyl tert-butyl ether	ND	5.0		"	"	"	"	"	"	
tert-Amyl methyl ether	ND	5.0		"	"	"	"	"	"	
1,2-Dichloroethane	ND	5.0		"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	5.0		"	"	"	"	"	"	
Benzene	ND	5.0		"	"	"	"	"	"	
Toluene	ND	5.0		"	"	"	"	"	"	
Ethylbenzene	7.0	5.0		"	"	"	"	"	"	
Xylenes (total)	13	5.0		"	"	"	"	"	"	
Gasoline Range Organics	ND	500		"	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %		78-129		"	"	"	"	



URS Corporation [Arco] 500 12th Street, Suite 200 Oakland CA, 94607	Project: ARCO #4977, Castro Valley, CA Project Number: INTRIM-50467 Project Manager: Scott Robinson	MML0428 Reported: 12/24/03 13:23
---	---	--

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----------------	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch 3L20002 - EPA 5030B P/T

Blank (3L20002-BLK1)

Prepared & Analyzed: 12/20/03

Ethanol	ND	100	ug/l							
tert-Butyl alcohol	ND	20	"							
Methyl tert-butyl ether	ND	0.50	"							
Di-isopropyl ether	ND	0.50	"							
Ethyl tert-butyl ether	ND	0.50	"							
tert-Amyl methyl ether	ND	0.50	"							
1,2-Dichloroethane	ND	0.50	"							
1,2-Dibromoethane (EDB)	ND	0.50	"							
Benzene	ND	0.50	"							
Toluene	ND	0.50	"							
Ethylbenzene	ND	0.50	"							
Xylenes (total)	ND	0.50	"							
Gasoline Range Organics	ND	50	"							

Surrogate: 1,2-Dichloroethane-d4

5.06

"

5.00

101

78-129

Laboratory Control Sample (3L20002-BS1)

Prepared & Analyzed: 12/20/03

Ethanol	212	100	ug/l	200		106	31-186			
tert-Butyl alcohol	55.8	20	"	50.0		112	0-206			
Methyl tert-butyl ether	11.5	0.50	"	10.0		115	63-137			
Di-isopropyl ether	10.6	0.50	"	10.0		106	76-130			
Ethyl tert-butyl ether	10.8	0.50	"	10.0		108	61-141			
tert-Amyl methyl ether	11.7	0.50	"	10.0		117	56-140			
1,2-Dichloroethane	10.4	0.50	"	10.0		104	77-136			
1,2-Dibromoethane (EDB)	11.2	0.50	"	10.0		112	77-132			
Benzene	10.0	0.50	"	10.0		100	78-124			
Toluene	10.6	0.50	"	10.0		106	78-129			
Ethylbenzene	10.7	0.50	"	10.0		107	84-117			
Xylenes (total)	33.1	0.50	"	30.0		110	83-125			

Surrogate: 1,2-Dichloroethane-d4

5.00

"

5.00

100

78-129

URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

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 Project Manager: Scott Robinson

 MML0428
 Reported:
 12/24/03 13:23

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3L20002 - EPA 5030B P/T
Laboratory Control Sample (3L20002-BS2) Prepared: 12/20/03 Analyzed: 12/21/03

Gasoline Range Organics	421	50	ug/l	440		95.7	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.02</i>		"	<i>5.00</i>		<i>100</i>	<i>78-129</i>			

Laboratory Control Sample Dup (3L20002-BSD1) Prepared: 12/20/03 Analyzed: 12/21/03

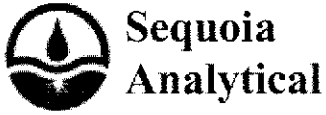
Ethanol	195	100	ug/l	200		97.5	31-186	8.35	37	
tert-Butyl alcohol	47.6	20	"	50.0		95.2	0-206	15.9	22	
Methyl tert-butyl ether	10.3	0.50	"	10.0		103	63-137	11.0	13	
Di-isopropyl ether	9.98	0.50	"	10.0		99.8	76-130	6.03	9	
Ethyl tert-butyl ether	9.99	0.50	"	10.0		99.9	61-141	7.79	9	
tert-Amyl methyl ether	11.0	0.50	"	10.0		110	56-140	6.17	12	
1,2-Dichloroethane	10.3	0.50	"	10.0		103	77-136	0.966	13	
1,2-Dibromoethane (EDB)	10.9	0.50	"	10.0		109	77-132	2.71	9	
Benzene	9.67	0.50	"	10.0		96.7	78-124	3.36	12	
Toluene	10.9	0.50	"	10.0		109	78-129	2.79	10	
Ethylbenzene	10.4	0.50	"	10.0		104	84-117	2.84	10	
Xylenes (total)	32.8	0.50	"	30.0		109	83-125	0.910	11	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>4.70</i>		"	<i>5.00</i>		<i>94.0</i>	<i>78-129</i>			

Laboratory Control Sample Dup (3L20002-BSD2) Prepared: 12/20/03 Analyzed: 12/21/03

Gasoline Range Organics	402	50	ug/l	440		91.4	70-113	4.62	9	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.08</i>		"	<i>5.00</i>		<i>102</i>	<i>78-129</i>			

Matrix Spike (3L20002-MS1) Prepared: 12/20/03 Analyzed: 12/21/03

	Source: MML0425-08									
Methyl tert-butyl ether	484	25	ug/l	496	5.5	96.5	63-137			
Benzene	330	25	"	320	78	78.8	78-124			
Toluene	2040	25	"	1480	320	116	78-129			
Ethylbenzene	3140	25	"	348	2700	126	84-117			QM-07
Xylenes (total)	9300	25	"	1680	7400	113	83-125			
Gasoline Range Organics	69700	2500	"	22000	48000	98.6	70-113			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>5.18</i>		"	<i>5.00</i>		<i>104</i>	<i>78-129</i>			



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URS Corporation [Arco]
 500 12th Street, Suite 200
 Oakland CA, 94607

Project: ARCO #4977, Castro Valley, CA
 Project Number: INTRIM-50467
 Project Manager: Scott Robinson

MML0428
 Reported:
 12/24/03 13:23

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Sequoia Analytical - Morgan Hill

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 3L20002 - EPA 5030B P/T

Matrix Spike Dup (3L20002-MSD1)	Source: MML0425-08			Prepared: 12/20/03		Analyzed: 12/21/03				
Methyl tert-butyl ether	498	25	ug/l	496	5.5	99.3	63-137	2.85	13	
Benzene	335	25	"	320	78	80.3	78-124	1.50	12	
Toluene	1920	25	"	1480	320	108	78-129	6.06	10	
Ethylbenzene	3070	25	"	348	2700	106	84-117	2.25	10	
Xylenes (total)	9200	25	"	1680	7400	107	83-125	1.08	11	
Gasoline Range Organics	66100	2500	"	22000	48000	82.3	70-113	5.30	9	
Surrogate: 1,2-Dichloroethane-d4	5.17		"	5.00		103	78-129			



URS Corporation [Arco]
500 12th Street, Suite 200
Oakland CA, 94607

Project: ARCO #4977, Castro Valley, CA
Project Number: INTRIM-50467
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MML0428
Reported:
12/24/03 13:23

Notes and Definitions

- QM-07 The spike recovery was outside control limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



Chain of Custody Record

Project Name 4977 GWM
 BP BU/GEM CO Portfolio Retail

MNL0928

BP Laboratory Contract Number: Atlantic Richfield Company

Requested Due Date (m/d/yyyy) 14 day TAT

Date: 12-11-03

On-site Time: 1345 Temp: 69°
 Off-site Time: _____ Temp: _____
 Sky Conditions: Clear
 Meteorological Events: NONE
 Wind Speed: 0 Direction: 0

Send To:	BP/GEM Facility No.: <u>ARCO 4977</u>	Consultant/Contractor: <u>URS</u>
Lab Name: <u>SEQUOIA</u>	BP/GEM Facility Address: <u>2770 Castro Valley Rd, Castro Valley, CA</u>	Address: <u>500 12th St, Ste. 200</u>
Lab Address: <u>885 Jarvis Dr.</u>	Site ID No. <u>ARCO 4977</u>	<u>Oakland, CA 94609-4014</u>
<u>Morgan Hill, CA 95037</u>	Site Lat/Long:	e-mail BDD: <u>donna.casper@URSCorp.com</u>
	California Global ID #:	Consultant/Contractor Project No.: <u>15-00004977.01 00-127</u>
Lab PM Theresa Allen	BP/GEM PM Contact: <u>PAUL SUPPLE</u>	Consultant Tele/Fax: <u>510-893-3600/510-874-3288</u>
Tele/Fax: <u>408-776-9600 / 408-782-6308</u>	Address: <u>P.O. Box 6549</u>	Consultant/Contractor PM: <u>Scott Robinson</u>
Report Type & QC Level: <u>1 Send EDF Reports</u>	<u>Morgan, CA 94570</u>	Invoice to: Consultant/Contractor of <u>BP/GEM</u> (Circle one)
BP/GEM Account No.:	Tele/Fax: <u>925-299-8881/925-298-8872</u>	BP/GEM Work Release No: <u>INIRIM -50467</u>

Item No.	Sample Description	Time	Matrix			Laboratory No.	No. of containers	Preservatives			Requested Analysis						Sample Point Lat/Long and Comments		
			Soil/Solid	Water/Liquid	Sediments/Air			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	TPH-C/BTEX (8015)	TPH-D (8015)	MTBE (8021)	MTBE (8260)	PAHs, TAME, ETBE (8260)		DPE, TEA (8260)	1,2-DCA & EDB (8260)
1	✓ MW-1	1510		W		01	3						X						
2	✓ MW-2	1500		W		02	3						X						
3	✓ MW-3	1575		W		03	3						X						
4	✓ TR-4977-12 H2605	-		X		04	2												on Hold
5																			
6																			
7																			
8																			
9																			
10																			

Sampler's Name: <u>Michael TD</u>	Relinquished By / Affiliation: <u>Michael BTS</u>	Date: <u>12/12</u>	Time: <u>18:00</u>	Accepted By / Affiliation: <u>[Signature]</u>	Date: <u>12/12/03</u>	Time: <u>18:00</u>
Sampler's Company: <u>Blaine Tech Services</u>						
Shipment Date:						
Shipment Method:						
Shipment Tracking No.:						

Instructions: Address Invoice to BP/GEM but send to URS for approval

Vials In Place Yes No Temperature Blank Yes No Cooler Temperature on Receipt Trip Blank Yes No

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: BP
 REC. BY (PRINT) TL
 WORKORDER: MM10428

DATE REC'D AT LAB: 12/12/03
 TIME REC'D AT LAB: 1800
 DATE LOGGED IN: 12-15-03

DRINKING WATER for
 regulatory purposes: YES / NO
 WASTE WATER for
 regulatory purposes: YES / NO

CIRCLE THE APPROPRIATE RESPONSE	LAB SAMPLE #	DASH #	CLIENT ID	CONTAINER DESCRIPTION	PRESERVATIVE	SAMPLE MATRIX	DATE SAMPLED	REMARKS: CONDITION (ETC.)
1. Custody Seal(s) Present / Absent Intact / Broken*			MW-1	(2) Vials	HCL	L	12/10/03	
2. Chain-of-Custody Present / Absent*			1-2					
3. Traffic Reports or Packing List: Present / Absent			1-3					
4. Airbill: Present / Absent			TB	(2)				
5. Airbill #:								
6. Sample Labels: Present / Absent								
7. Sample IDs: Listed / Not Listed on Chain-of-Custody								
8. Sample Condition: Intact / Broken* / Leaking*								
9. Does information on chain-of-custody, traffic reports and sample labels agree? Yes / No*								
10. Sample received within hold time: Yes / No*								
11. Adequate sample volume received? Yes / No*								
12. Proper Preservatives used: Yes / No*								
13. Temp Rec. at Lab: Is temp 4 +/- 2°C? Yes / No*								
(Acceptance range for samples requiring thermal pres.)								
**Exception (if any): METALS / DFF ON ICE or Problem COC								

12/12/03 TL

***IF CIRCLED, CONTACT PROJECT MANAGER AND ATTACH RECORD OF RESOLUTION.**

ATTACHMENT C

EDCC REPORT AND EDF/GEOWELL SUBMITTAL CONFIRMATION

Error Summary Log

12/30/03

EDF 1.2i All files present in deliverable.

Laboratory:	Sequoia Analytical Laboratories, Inc., Morgan Hill, CA
Project Name:	ARCO #4977, Castro Valley
Work Order Number:	MML0428
Global ID:	NA
Lab Report Number:	MML0428122420031323

Report Summary

Labreport	Sampid	Labsampid	Mtrx	QC	Anmcode	Exmcode	Logdate	Extdate	Anadate	Lablotctl	Run Sub
MML04281224200 31323	MWV-1	MML042801	W	CS	8260TPH	SW5030B	12/11/03	12/20/03	12/21/03	3L20002	1
MML04281224200 31323	MWV-2	MML042802	W	CS	8260TPH	SW5030B	12/11/03	12/20/03	12/21/03	3L20002	1
MML04281224200 31323	MWV-3	MML042803	W	CS	8260TPH	SW5030B	12/11/03	12/20/03	12/21/03	3L20002	1
		MML042508	W	NC	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1
		3L20002BSD1	WQ	BD1	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1
		3L20002BSD2	WQ	BD2	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1
		3L20002BS1	WQ	BS1	8260TPH	SW5030B	//	12/20/03	12/20/03	3L20002	1
		3L20002BS2	WQ	BS2	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1
		3L20002BLK1	WQ	LB1	8260TPH	SW5030B	//	12/20/03	12/20/03	3L20002	1
		3L20002MS1	W	MS1	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1
		3L20002MSD1	W	SD1	8260TPH	SW5030B	//	12/20/03	12/21/03	3L20002	1

EDFSAMP: Error Summary Log

12/30/03

Error type	Logcode	Projname	Npdlwo	Sampid	Matrix
There are no errors in this data file					

EDFTEST: Error Summary Log

12/30/03

Error type	Labsampid	Qccode	Anmcode	Exmcode	Anadate	Run number
There are no errors in this data file					//	0

EDFRES: Error Summary Log

12/30/03

Error type	Labsampid	Qccode	Matrix	Anmcode	Pvccode	Anadate	Run number	Parlabel
There are no errors in this data file						//	0	

EDFQC: Error Summary Log

12/30/03

Error type	Lablotcl	Anmcode	Parlabel	Qccode	Labqcid
There are no errors in this data files					

EDFCL: Error Summary Log

12/30/03

Error type	Crevdate	Anmcode	Exmcode	Parlabel	Cicode
There are no errors in this data file	//				

AB2886 Electronic Delivery

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Submittal Title: Fourth Quarter 2003 Siste 4977 Geowell
Submittal

Submittal Date/Time: 12/31/2003 9:28:27 AM

**Confirmation
Number:** 3773466348

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Confirmation Number: 6259932577

Date/Time of Submittal: 12/30/2003 5:17:36 PM

Facility Global ID: T0600100089

Facility Name: ARCO

Submittal Title: Fourth Quarter 2003 GW Monitoring Report Site 4977

Submittal Type: GW Monitoring Report

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